| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/507,213 | 02/18/2000 | Tinku Acharya | 042390.P8350 | 8186 |

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| EXAMINER |
|---|
| DO, ANH HONG |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2624 | |

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ___3___ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *May 9, 2003* _____ .

2a) ☐ This action is **FINAL**.        2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-31* _____ is/are pending in the application.

    4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *30 and 31* _____ is/are allowed.

6) ☒ Claim(s) *1-9 and 12-29* _____ is/are rejected.

7) ☒ Claim(s) *10 and 11* _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some* c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    *See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

| | |
|---|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) Paper No(s). _____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ | 6) ☐ Other: |

# DETAILED ACTION

## *Continued Examination Under 37 CFR 1.114*

1.      A request for continued examination under 37 CFR 1.114, including the fee set forth in 37

CFR 1.17(e), was filed in this application after final rejection.  Since this application is eligible for

continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been

timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR

1.114.  Applicant's submission filed on 5/9/2003 has been entered.

## *Response to Arguments*

2.      Applicant's arguments with respect to claims 1-31 have been considered but are moot in

view of the new ground(s) of rejection.

## *Claim Rejections - 35 USC § 102*

3.      The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4.      Claims 1-9 and 12-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Sato (U.S. Patent No. 6,560,369).

Regarding claims 1, 2 and 24, Sato discloses:

- applying a process to transform the transformed signal samples from a first domain to a second domain by discrete wavelet transformer 802 (Fig. 8), the transform process comprises an inverse discrete wavelet transformer 605 (Fig. 7) to decompose signal samples into two or more subbands (Fig. 6B);

- during the transform process, filtering quantized signal samples, by first applying scaled filter coefficients, the signal samples first being filtered along the image in a first direction and then along the image in another direction (col. 6, lines 11-22), so that at the completion of the transform process of the image, at least selected regions of the transformed signal samples are inversed quantized using inverse quantizer 603 (Fig. 7).

Regarding claim 3, Sato teaches the first domain is the spatial domain, the second domain is the frequency domain (col. 5, lines 30-37), the first direction is horizontal direction (i.e., a row-wise) and the second direction is vertical direction (i.e., column-wise) (col. 6, lines 26-37), and IDWT 605 (Fig. 7) for decomposing signal samples into two or more subbands (Fig. 6B).

Regarding claims 17 and 18, Sato discloses:

- an image input apparatus 101 (corresponding to the claimed integrated circuit) having

input ports to receive signal samples associated with at least one image (Fig. 4A);

- a digital circuitry applying a process to transform the transformed signal samples from a

first domain to a second domain by discrete wavelet transformer 802 (Fig. 8), the transform

process comprises an inverse discrete wavelet transformer 605 (Fig. 7) to decompose signal

samples into two or more subbands (Fig. 6B);

- during the transform process, filtering quantized signal samples, by first applying scaled

filter coefficients, the signal samples first being filtered along the image in a first direction and

then along the image in another direction (col. 6, lines 11-22), so that at the completion of the

transform process of the image, at least selected regions of the transformed signal samples are

inversed quantized using inverse quantizer 603 (Fig. 7).

Regarding claims 19 and 25, since this claim recites the same subject matters as those in

claim 3, the discussion of claim 3 applies hereto.

Regarding claims 4, 12, 20 and 26, Sato teaches a two-dimensional / multidimensional

IDWT 605 (Fig. 7).

Regarding claims 5, 21 and 27, Sato teaches a decomposition into mutually orthogonal

directions, the decomposition being into low pass and high pass subbands (col. 6, lines 11-22).

Regarding claims 6 and 7, Sato teaches biorthogonal spline filters comprising 9-7 filters

(col. 6, lines 11-22).

Regarding claims 8, 9, 22, 23, 28 and 29, Sato teaches a second level (or kth level) of transformation (col. 7, lines 11-18) and scaling to the LL subband of the transformed image (col. 6, lines 11-22).

Regarding claim 13, Sato teaches the method of quantization is applied to successive video image frames (col. 1, lines 48-54).

Regarding claims 14 and 15, Sato teaches quantizer 803 for truncating and rounding the signal sample values (Fig. 8).

Regarding claim 16, Sato teaches the selected portion of the transformed signal samples comprises an entire image of transformed signal samples (col. 1, lines 48-54).

### *Allowable Subject Matter*

5.      Claims 30 and 31 are allowed.

6.      Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7.      The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 10, 11, 30 and 31, the prior art, taken either singly or in combination, does not teach:

- applying the scale factor $1/\text{sqr}[Q(LL_k)]$ to each filter coefficient in the low pass / high pass filtering operation over the $LL_{k-1}$ subband to generate subbands $LL_k$ and $HL_k$ ;

- applying the scale factor $\text{sqr}[Q(LL_k)]/Q(LH_k)$;

- applying the scale factor $Q(HL_k)/Q(HH_k)\,\text{sqr}[Q(LL_k)]$.

### *Contact Information*

8.      Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh Hong Do whose telephone number is (703) 308-6720.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700 or 4750. The fax phone number for this Group is (703) 872-9314.

June 13, 2003.